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Patents Department  
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EXAMINER

HOM, SHICK C

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/976,591

Applicant(s)

CHEN ET AL.

Examiner

Shick C. Horn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 and 36-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36 is/are allowed.
- 6) ☒ Claim(s) 1-34 and 37-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed 1/21/05 have been fully considered but they are not persuasive. In page 16 of the remarks, applicant argued that Greenblatt do not teach "encoding said multiplexed content with a second code to provide a set of frames" is not persuasive because Greenblatt in Fig. 2 shows the voice input being first encoded by the A/D converter and placed into buffers A and B, whereby the content of the buffers are inputted to the multiplexer for encoding the content into frames for output to the telephone lines clearly reads on encoding said multiplexed content with a second code to provide a set of frames and since the process of converting data into code or analog voice into a digital signal, the A/D converter clearly reads on encoding bits in the buffers with a first code as in claim 1. In page 17, applicant argued that Greenblatt do not teach "decoding received frames by a second decoder" is not persuasive because Greenblatt in Fig. 3 shows the decoding demultiplexer which clearly reads on decoding received frames by a second decoder as in claim 8.

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### ***Specification***

2. The disclosure is objected to because of the following informalities: in page 2 line 31, after the words "filed November 3, 1997," insert ---now U.S. Patent No. 6,574,211. In page 5 lines 20, 22, identify the parameters n and m, respectively, for clarity, and in line 30, delete typo "may is" and insert ---may be---. Appropriate correction is required.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Drawings***

4. The drawings are objected to because in Fig. 2, provide label number ---104--- to the Tx buffer for outer code and Figure 2 should also be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing

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figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Objections***

5. Claims 37 and 39-40 are objected to because of the following informalities: in claims 37 and 39-40 line 1 delete typo "claim 35" and insert ---claim 36--- because claim 35 have been cancelled. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

6. Claims 8 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8 line 2 and claim 14 line 6 which recite "a second decoder" is not clear because it is not clear where is the first decoder.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 8, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Greenblatt (5,136,586).

Regarding claim 1:

Greenblatt disclose the encoding method for reducing decoding complexity, the method comprising: encoding systematic bits in each of a plurality of buffers with a first code; multiplexing content of the plurality of buffers; and encoding said multiplexed content with a second code to provide a set of frames (see the abstract which recite multiplexing voice and modem-encoded digital data within each frame, Figs. 2 and 3, which shows the buffers A and B, and the multiplexer for multiplexing the content of the buffers A and B, including the modem-encoder; further see col. 3 lines 6-28 which recite encoding using buffer memory devices and the decoding side).

Regarding claim 8:

Greenblatt disclose the method reducing decoding complexity, comprising: decoding received frames by a second decoder; de-multiplexing correctly decoded frame to a plurality of buffers; and processing content of each of the plurality of buffers (see col. 3 lines 6-28 which recite encoding using buffer memory devices, the receiving equipment including the step of decoding and de-multiplexing to buffers C and D, and Fig. 3 which shows the D-A processing the content of the buffers).

Regarding claim 14:

Greenblatt disclose the method for reducing decoding complexity, comprising: encoding systematic bits in each of a plurality of transmit buffers with a first code; multiplexing content of the plurality of transmit buffers; encoding said multiplexed content with a second code to provide a set of frames (see the abstract which recite multiplexing voice and modem-encoded digital data within each frame, Figs. 2 and 3, which shows the buffers A and B, and the multiplexer for multiplexing the content of the buffers A and B, including the modem-encoder; further see col. 3 lines 6-28 which recite encoding using buffer memory devices and the decoding side); transmitting the set of frames (see col. 1 lines 26-49 which recite the information being transmitted in a digital channel);

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decoding received frames by a second decoder; de-multiplexing correctly decoded frame to a plurality of receive buffers; and processing content of each received buffer (see col. 3 lines 6-28 which recite encoding using buffer memory devices, the receiving equipment including the step of decoding and de-multiplexing to buffers C and D, and Fig. 3 which shows the D-A processing the content of the buffers).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered



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therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 26 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenblatt (5,136,586) in view of Nefedov (6,704,369).

Regarding claims 26 and 41:

For claims 26 and 41, Greenblatt discloses the apparatus described in paragraph 8 of this office action; Greenblatt discloses all the subject matter of the claimed invention with the exception of an inner encoder communicatively coupled to said multiplexer.

Nefedov from the same or similar fields of endeavor teach that it is known to provide an inner encoder communicatively coupled to said multiplexer (see col. 3 line 64 to col. 4 line 13, Fig. 5, and col. 5 lines 30-51 which recite the inner encoder 509 coupled to the multiplexer 510). Thus, it would

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have been obvious to the person having ordinary skill in the art at the time the invention was made to provide an inner encoder communicatively coupled to said multiplexer as taught by Nefedov in the apparatus of Greenblatt. The inner encoder communicatively coupled to said multiplexer can be implemented by connecting the encoder of Nefedov to the multiplexer at the transmitter of Greenblatt. The motivation for using the inner encoder communicatively coupled to said multiplexer as taught by Nefedov in the apparatus of Greenblatt being that it provides more efficiency for the system since the system can more simply and iteratively decode the signals at the receiving end.

12. Claims 2-5, 9, 11, 15-18, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenblatt (5,136,586) in view of Naden et al. (6,560,206).

Regarding claims 2-5, 9, 11, 15-18, 21, and 23:

For claims 2-5, 9, 11, 15-18, 21, and 23, Greenblatt discloses the apparatus and method described in paragraph 8 of this office action. For claims 2-5, 9, 11, 15-18, 21, 23, Greenblatt discloses all the subject matter of the claimed invention with the exception of wherein said encoding systematic bits in each of a plurality of buffers with an first code comprises: encoding systematic bits in each of the plurality of

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buffers with a block code as in claims 2, 15; encoding systematic bits in each of the plurality of buffers with a Reed-Solomon code as in claims 3, 16; wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers as in claims 4-5, 9, 17-18, 21; and wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers as in claims 11, 23.

Naden et al. from the same or similar fields of endeavor teach that it is known to encode systematic bits in each of the plurality of buffers with a block code; encode systematic bits in each of the plurality of buffers with a Reed-Solomon code; and encode systematic bits to provide parity bits (see col. 7 line 66 to col. 8 line 49 which recite the use of Reed-Solomon block code and the parity bits); and wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers (see the frame structure in Figs. 3-4); and wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers (see col. 10 lines 40-46). Thus, it would have been obvious to the person having ordinary skill in the art at

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the time the invention was made to encode systematic bits in each of the plurality of buffers with a block code; encode systematic bits in each of the plurality of buffers with a Reed-Solomon code; encode systematic bits to provide parity bits; and wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers; and wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers as taught by Naden et al. in the apparatus and method of Greenblatt. The encoding systematic bits in each of the plurality of buffers with a block code; with a Reed-Solomon code; and having bits to provide parity bits can be implemented by using the Reed-Solomon block code including the parity bits of Naden et al. in the encoder of Greenblatt. The motivation for encoding systematic bits in each of the plurality of buffers with a block code; with a Reed-Solomon code; and having bits to provide parity bits as taught by Naden et al. in the method and apparatus of Greenblatt being that it provides more reliable and efficiency for the system since the system can optimize the coding performance.

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13. Claims 27-32, 42-47, 51, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenblatt (5,136,586) and Nefedov (6,704,368) in view of Naden et al. (6,560,206). Regarding claims 27-32, 42-47, 51, and 54:

For claims 27-32, 42-47, 51, and 54 Greenblatt and Nefedov disclose the apparatus and method described in paragraph 11 of this office action. For claims 27-32, 42-47, 51, and 54 Greenblatt and Nefedov disclose all the subject matter of the claimed invention with the exception of wherein said encoding systematic bits in each of a plurality of buffers with an first code comprises: encoding systematic bits in each of the plurality of buffers with a block code as in claims 29, 44; encoding systematic bits in each of the plurality of buffers with a Reed-Solomon code as in claims 30, 45; encode systematic bits to provide parity bits as in claims 27-28 and 42-43; wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers as in claims 31-32, 46-47, 51; and wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers as in claim 54.

Naden et al. from the same or similar fields of endeavor teach that it is known to encode systematic bits in each of the

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plurality of buffers with a block code; encode systematic bits in each of the plurality of buffers with a Reed-Solomon code; and encode systematic bits to provide parity bits (see col. 7 line 66 to col. 8 line 49 which recite the use of Reed-Solomon block code and the parity bits); and wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers (see the frame structure in Figs. 3-4); and wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers (see col. 10 lines 40-46). Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to encode systematic bits in each of the plurality of buffers with a block code; encode systematic bits in each of the plurality of buffers with a Reed-Solomon code; encode systematic bits to provide parity bits; and wherein said multiplexing and de-multiplexing content of the plurality of buffers comprises: providing a block of bits successively from a row of each of the plurality of buffers; and wherein said processing content of each receive buffer comprises: providing systematic portion of each buffer to higher layers as taught by Naden et al. in the apparatus and method of Greenblatt and Nefedov. The encoding systematic bits in each of

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the plurality of buffers with a block code; with a Reed-Solomon code; and having bits to provide parity bits can be implemented by using the Reed-Solomon block code including the parity bits of Naden et al. in the encoder of Greenblatt and Nefedov. The motivation for encoding systematic bits in each of the plurality of buffers with a block code; with a Reed-Solomon code; and having bits to provide parity bits as taught by Naden et al. in the method and apparatus of Greenblatt and Nefedov being that it provides more reliable and efficiency for the system since the system can optimize the coding performance.

***Allowable Subject Matter***

14. Claims 6-7, 10, 12, 13, 19, 20, 22, 24, 25, 33, 34, 37-40, 48-50, 52, 53 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph and objections, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. Claims 36 is allowed.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Sutton et al. disclose a method and apparatus for distributing and consolidating data packets onto multiple network interfaces.

Uz et al. disclose a method for performing rate control in a video encoder which provides a bit budget for each frame while employing virtual buffers and virtual buffer verifiers.

Eckenrode et al. disclose FDDI network test adaptor error injection circuit.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick C. Hom whose telephone number is 571-272-3173. The examiner can normally be reached on Monday to Friday with alternate Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH



DANG TON  
PRIMARY EXAMINER